

Optical and Mechanical Characterization of Severe Plastically Deformed Copper Alloy Processed by Constrained Groove Pressing

Authors : Jaya Prasad Vanam, Vinay Anurag P, Vidya Sravya N S, Kishore Babu Nagamothu

Abstract : Constrained Groove Pressing (CGP) is one of the severe plastic deformation technique (SPD) by which we can process Ultra Fine Grained (UFG)/plane metallic materials. This paper discusses the effects of CGP on Cu-Zn alloy specimen at room temperature. A comprehensive study is made on the structural and mechanical properties of Brass specimen before and after Constrained grooves Pressing. Entire process is simulated in AFDEX CAE Software. It is found that most of the properties are superior with respect to brass samples such as yield strength, ultimate tensile strength, hardness, strain rate, etc., and they are found to be better for the CGP processed specimen. The results are discussed with respective graphs.

Keywords : constrained groove pressing, AFDEX, ultra fine grained materials, severe plastic deformation technique

Conference Title : ICAMAME 2020 : International Conference on Aerospace, Mechanical, Automotive and Materials Engineering

Conference Location : London, United Kingdom

Conference Dates : November 19-20, 2020